Forget Location, Location, Location:

It's all in the Shape

How technology is changing Commercial Real Estate Investing

Commercial Real Estate (CRE) has been a slow adopter of big data and technology and the disruption evidenced in other sectors because of CRE's dependence on deal making and the skills of the negotiator. Institutional investors, on the other hand, have become more concerned with the predictability of their investments and the need to manage risk rather than qualitative promises of returns. These trends are having a significant impact on the way in which pension funds, banks and insurers are thinking about commercial real estate.

To caricature the traditional CRE investment process; prime location, outstanding build quality, good tenants, fully occupied: what more do we need to understand when investing institutional funds in commercial real estate? Fund managers add up the rents, forecast the future value and arrive at returns that meet the pension funds requirements. A 'worst case scenario' is also devised where the building is not fully occupied or market rents fall and the lower returns are calculated as a percentage reduction for the investor.

What this approach fails to note is bad things come not as single spies but in battalions of highly correlated events. Take for example a shopping mall: when the economy turns sour and tenants default, the landlord is left with not only empty units and no rent but also the cost of renovation and maintenance, high letting fees and falling market rents. Replacement tenants are likely to be of a lower credit grade, with larger initial incentives and shorter leases. The present way in which analysts and appraisers calculate returns fails to measure these correlations and assume in the worst case the investor will merely get a lower percentage of the rent and capital returns. This approach misses the extent to which an investment can fail to meet its target returns.

Another illustration of how risk is misconceived is associated with secondary vs. prime buildings. For example, a trophy office building in a leading city centre, fully occupied and brand new. What could be a better, safer investment? On the contrary, as a building in a prime location, we can assume the (elevated) price at purchase has been fully baked into the 'market value' or in other words, it will have a small yield (or return on capital from rents). It is therefore unlikely to rise further above the average market price but if there is a fall in the market it will probably fall further than the average – given its starting point. Additionally, as it is already fully occupied all the risks to the rents are on the downside, and as it is a new build, its value will depreciate over time.

How have we ended up in a situation where 'experts' provide counter factual advice to investors: advice that drives pension funds towards the most volatile investments, not the safest? In part, it is due to a poor understanding of risk and the difference between an expert judgement/forecast and an assessment of probability.

What investors, and in particular pension funds, need is an understanding and measure of how risky an investment is or how likely they are to meet their objectives. Something real estate funds have so far been unable to provide to their customers.

Almost every other area of human endeavour which involves risk use models to measure uncertainty through simulation or similar statistical techniques. Aircraft and nuclear engineers understand the need to run simulations, weather forecasters and geologists use stochastic models, corporate and government debt are given measures of risk or ratings and drug trials are based on probabilities, not certainties. The world is uncertain and there is nothing we can do about it – forecasting as if there were certainties about the future has been long abandoned in almost every field except real estate. Commercial Real Estate has tended to respond by putting more and more detail about costs and recoveries into their calculation of promised returns while ignoring the elephant in the room.

Risk is in the Shape

Which brings us to shapes. One of the easiest ways to understand something is to visualise it and for statistics, it is perhaps the most intuitive way to interpret the data. The good news is that once a few simple concepts are understood an appreciation complex risk can be readily grasped. Risk models by their design are not precise but they are accurate because we cannot know the future precisely but we can know its probability – that's a simple fact of nature.

To build a risk model we need to put 'expert' judgement to one side (not ignore it), and focus on the facts: what we know about past values with their correlations and what we know about the building, its tenants and leverage. Fortunately, there has been an explosion of data to help us and a revolution in computing power to crunch the numbers. Now is the time for real estate to play catch up.

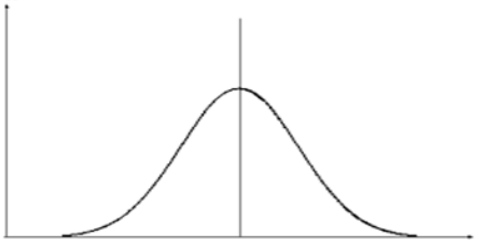

Fig. 1

Instead of getting one or perhaps three answers to the question – what will I earn from this building over the next five years – we can generate 10,000 answers each with a different set of realistic assumptions about the future. If the plot of these answers looked like the chart (fig.1) we would say it had a 'normal distribution'. This is a useful

insight as it would indicate the risk is equal on the upside and downside.

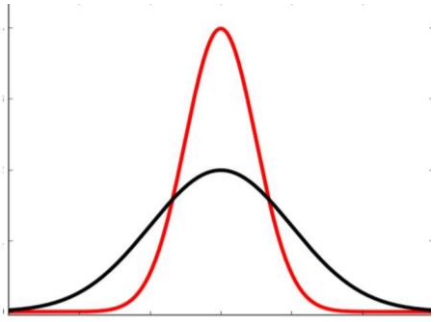

Fig. 2

Another insight is that if the building had a series of IRRs that looked like the Red versus the Black trace on the chart (fig. 2) we would know that the chances of either getting a much higher or lower return are lower than for the IRRs for the Black building. In other words, the distribution is wider for the Black than the Red building. If the investor is seeking more volatility in the hope of gaining additional returns they may prefer to take some risk with the Black property, while an investor whose aim is to be as safe as possible but is willing to sacrifice unexpected higher returns would prefer the Red building.

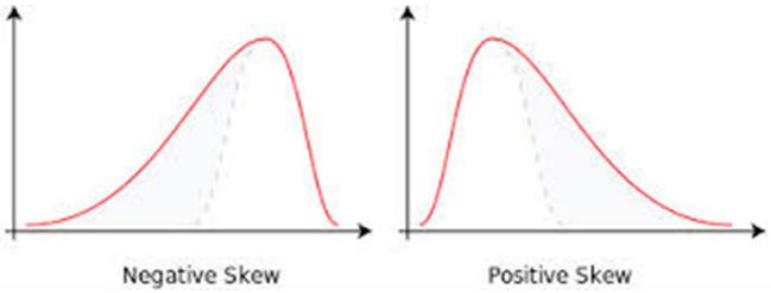

Fig. 3

An investment with a Negative Skew such as in the chart (fig. 3) would indicate the risk is on the downside. This tells us that we are more likely to get a lower return than the average expectation. While on the other hand, the Positively Skewed property is more likely to give a higher than average return.

The final chart (fig.4) gives us an insight into the probability we will be in serious negative territory. Instead of concocting an imagined worst-case scenario as is done traditionally this approach tells us the severity and likelihood of suffering losses.

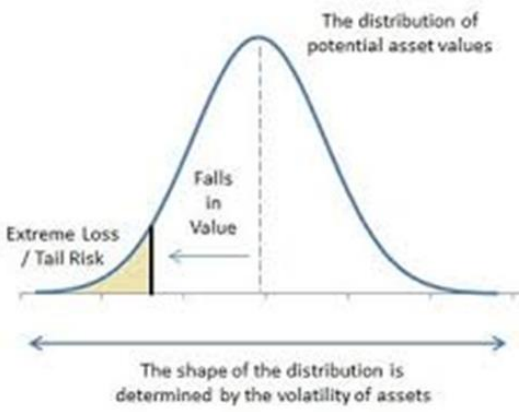

Fig. 4

In conclusion, institutional investors will gain a lot more from understanding the Shape of their investment than they will by over analysing a single cash flow or focusing on location or other attributes in isolation.

Radley Associates is an independent firm dedicated to the development of advanced simulation based analytics for the Commercial Real Estate industry. Our clients include leading banks, fund managers and REITS. We have deep expertise in property, simulation modelling, econometric analysis and risk.

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